



DEFENSE INTELLIGENCE AGENCY

WASHINGTON, D.C. 20301

ILLEGIB

9 October 1970

C-1141/XX-2

SUBJECT: Data on U-2 Camera System

TO: Director, National Photographic  
Interpretation Center

ATTN: [REDACTED]  
Washington, D.C. 20505

Per your request, enclosed is a copy of the data on  
the "B" configuration which was submitted for release  
to the [REDACTED]

FOR THE DIRECTOR:

1 Enclosure a/s (U)

[REDACTED]  
Acting Chief,  
Support Division  
Special Activities Office

Declass Review by NIMA/DOD

DIA review(s) completed.

("B" Configuration)

GENERAL DESCRIPTION - The "B" configuration consists of a thirty-six inch focal length, eighteen by eighteen inch split format, high resolution reconnaissance camera designed to provide continuous still picture coverage of an extremely large area. Two modes of operation provide the following ground coverage:

Mode a. Vertical to right horizon using four lens positions (V, 1R, 2R, 3R)

Mode b. Vertical to left horizon using four lens positions (V, 1L, 2L, 3L).

GROUND COVERAGE - Attachments 1 and 2 illustrate the ground coverage and the lens scanning pattern of each mode.

TECHNICAL CHARACTERISTICS

1. Format - 18 x 18 inches (in two 9 x 18 parts on separate rolls).

2. Film

Capacity - 6500 feet thin base on each of two rolls.

Width - 9 1/2 inch Estar thin base.

3. Lens

Type - Aspheric

F/stop - f/10

Focal length - 36 inches

4. Shutter type - Between the lens.

5. Lens positions -

3R - 73.5 degrees

2R - 49.0 degrees

1R - 24.5 degrees

V - 00.0 degrees

1L - 24.5 degrees

2L - 49.0 degrees

3L - 73.5 degrees

6. K factor - 50,000 ft.

7. Altitude - K factor plus altitude from frame titling data.

DATA PRESENTATION - The data recorder is comprised of a double lens housing assembly and an instrument housing assembly. The instrument housing contains a four-digit resettable counter and a manually wound twenty-four hour clock. There is space on either side of the counter to write in additional data such as date, flight number, etc. The vertical indicator light assemblies expose a round dot on the outboard edge of both film strips each time the oblique head is vertical. There is a right and left oblique position indicator unit, one for each film strip. The data recorder information and film format are illustrated in attachment 3.

IMAGE ORIENTATION -

1. Film Negative:

a. The camera exposes an 18 x 18 inch area on two lengths of 9 1/2 inch wide thin base film moving in opposite

directions across a vertically mounted platen. The lens is mounted with its optical axis parallel to the platen, and the image path is bent  $90^{\circ}$  at the exit pupil by a  $45^{\circ}$  mirror. The lens and mirror assembly rotates on a horizontal axis which passes through the center of the inclined mirror and the platen.

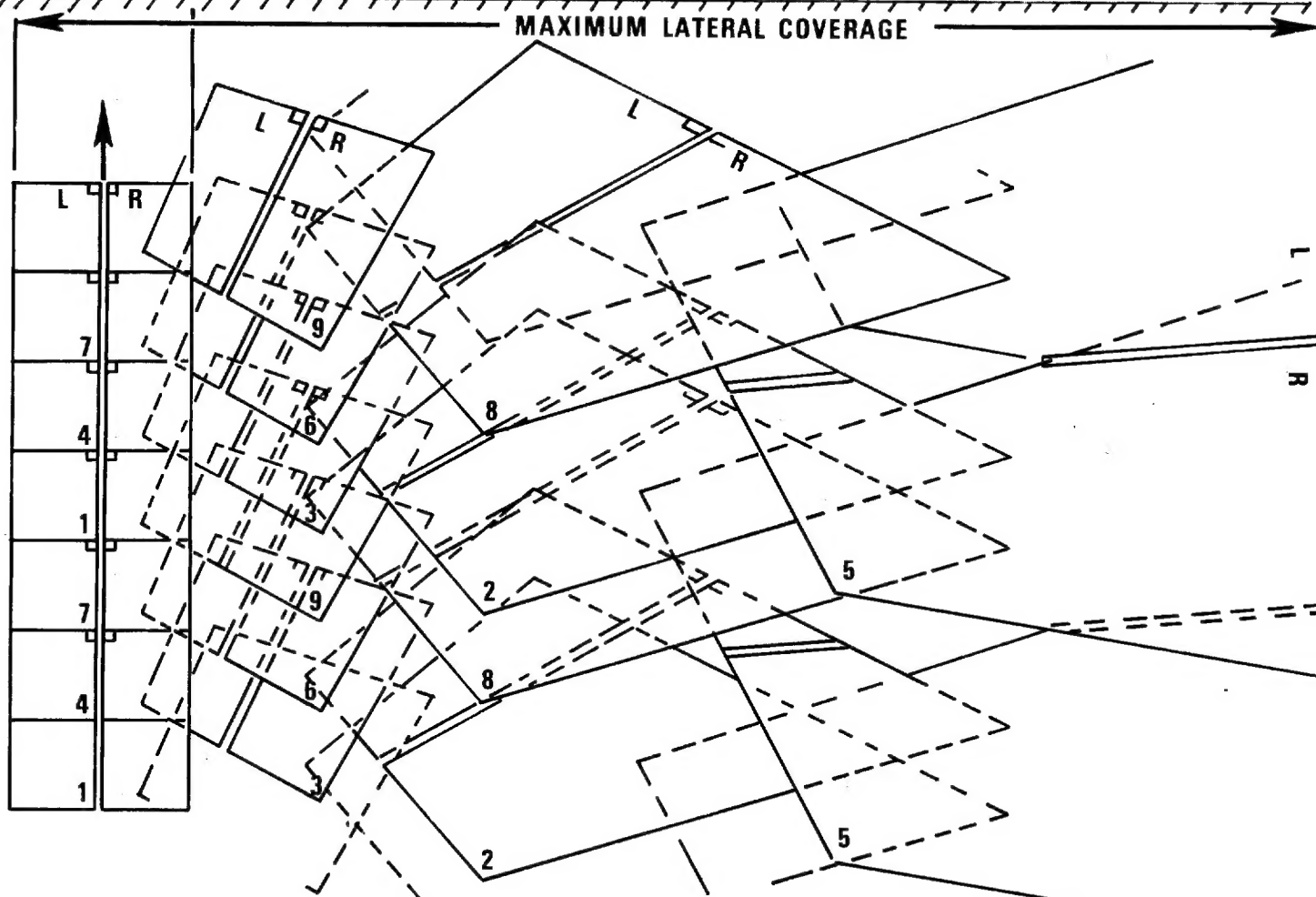
b. The lens-mirror combination reverses the image end-for-end and side-to-side. When matching halves are viewed emulsion up with the data block at the top, the image on a vertical exposure is oriented properly facing toward the line of flight.

c. Obliques to the right will be facing  $24.5^{\circ}$ ,  $49^{\circ}$  and  $73.5^{\circ}$  to the right of the flight path and left obliques will be inclined similarly to the left.

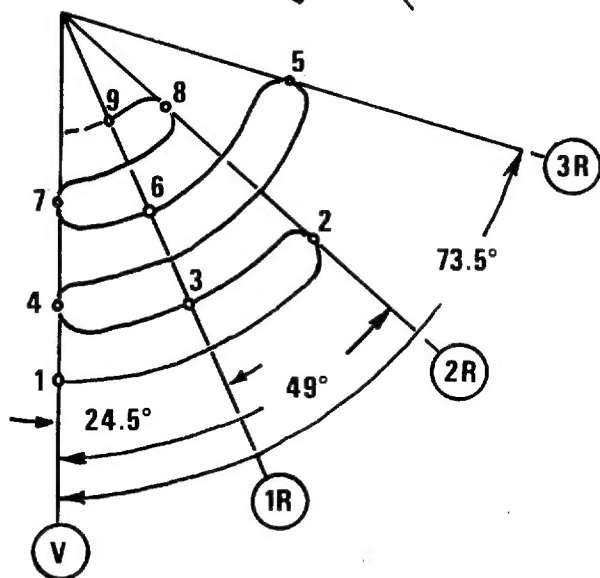
d. Details of the format presentation and recorded data are shown in attachment 3. The sides of the format do not appear perfectly straight on the negative because of the concave distortion produced by the dished contour of the platen.

e. Positive transparencies contact printed emulsion to emulsion are in proper orientation when viewed through the back, emulsion down. For proper orientation it is necessary to expose a contact paper print with the negative back facing the print. Projection printing is oriented by projecting back of negative to print emulsion.

2. Ground Orientation - The designation "9R" is for the film covering the right half of the ground image and "9L" for the film covering the left half of the ground image. The physical position of the film in the camera is opposite to this designation when viewed from lens end, facing forward.

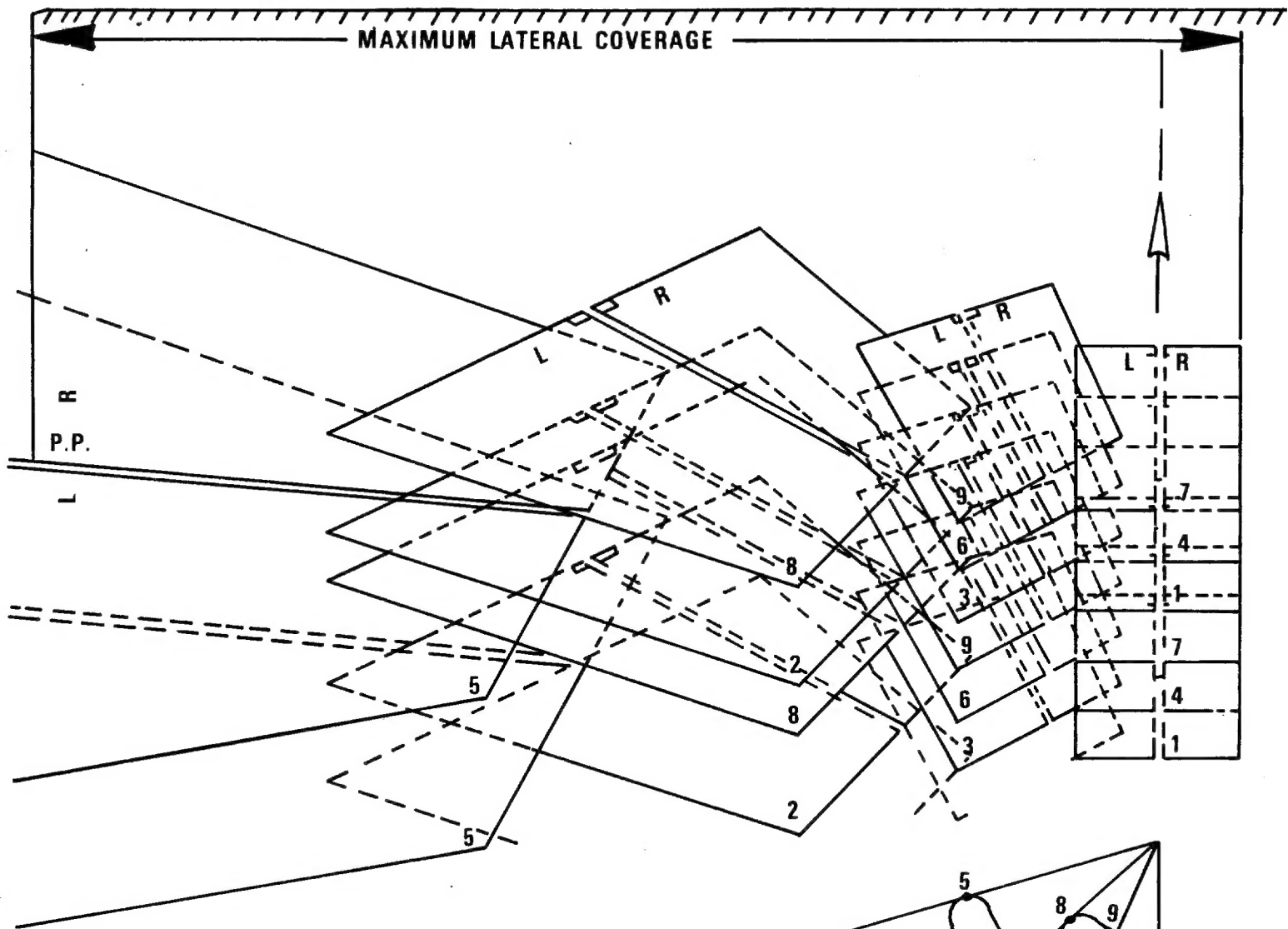


GROUND COVERAGE PATTERN - MODE A

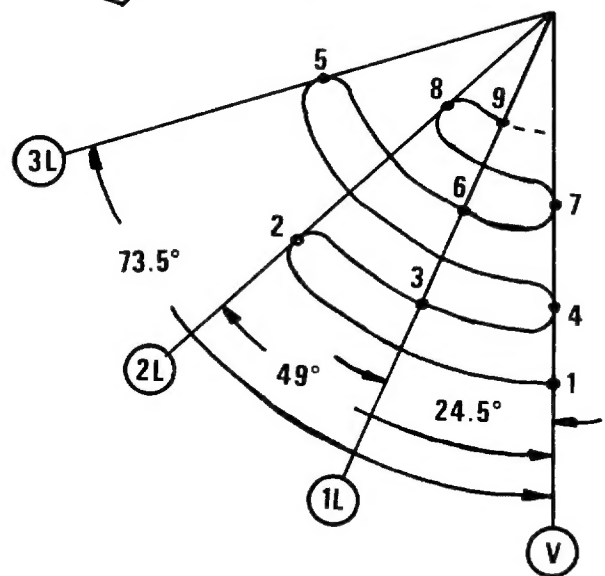


SEQUENCE OF LENS POSITIONS - MODE A

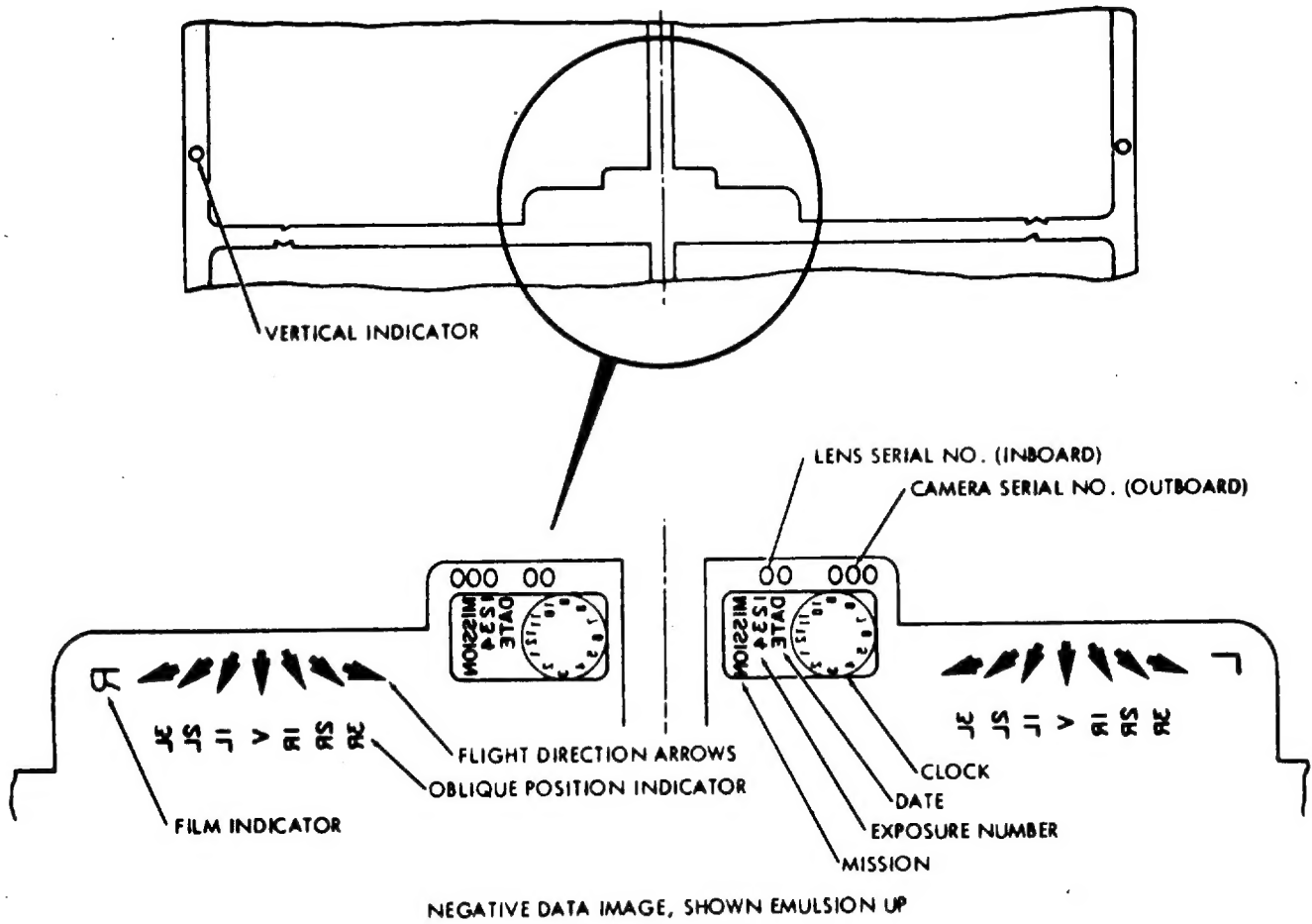
GROUND COVERAGE AND LENS POSITION SEQUENCE - MODE A



GROUND COVERAGE  
PATTERN - MODE B




SEQUENCE OF  
LENS POSITIONS -  
MODE B



### . Data Presentation

Atch 3



TO		INITIALS	DATE	REMARKS
DIRECTOR	4	act	10/16	FYI Attached is a copy of the "B" Camera configuration data made available to <div style="border: 1px solid black; height: 40px; width: 100%;"></div> Copies sent to <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
DEP/DIRECTOR	3		10/14	
EXEC/DIRECTOR	2	act	10/15	
SPECIAL ASST	1	M	10/15	
ASST TO DIR	5	act	10/16	
HISTORIAN				
CH/PPBS				
DEP CH/PPBS				
EXO/PPBS				
CH/SS				
DEP CH/SS				
SC & P				
RECORDS MGT				
PERSONNEL				
LOGISTICS				
TRAINING				
SECURITY				
FINANCE				
CH/IEG				
DEP CH/IEG				
EXO/IEG				
CH/PSG				
DEP CH/PSG				
EXO/PSG				
CH/TSG				
DEP CH/TSG				
EXO/TSG				
DIR/IAS/DDI				
CH/DIAXX-4				
CH/DIAAP-9				
CH/SPAD				

IP FORM 30 (7-70) OBSOLETE PREVIOUS EDITIONS

25X1

25X1